



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/814,465	03/21/2001	John Paquette	05923-012001	4116

23483 7590 09/09/2003

HALE AND DORR, LLP
60 STATE STREET
BOSTON, MA 02109

EXAMINER

SAADAT, CAMERON

ART UNIT

PAPER NUMBER

3713

DATE MAILED: 09/09/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/814,465

Applicant(s)

PAQUETTE ET AL.

Examiner

Cameron Saadat

Art Unit

3713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11-34, 36-59 and 61-77 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-22, 24-28, 30-47, 49-53, 55-72 and 74-77 is/are rejected.
- 7) ☒ Claim(s) 4, 23, 29, 48, 54 and 73 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 3713

DETAILED ACTION

In response to amendment filed 6/20/03 claims 1-9, 11-34, 36-59, 61-75 and newly added claims 76-77 are pending in this application. Claims 10, 35, and 60 are cancelled.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 1-3, 5-9, 12, 26-28, 30-34, 37, 51-53, 55-59, and 62 are rejected under 35 U.S.C. 102(e) as being anticipated by Yourlo (U.S. Patent No. 6,201,176).**

Regarding claims 1, 26, and 51, Yourlo discloses a computer-implemented method and apparatus for generating a musical part from an electronic music file 100 comprised of pitched instrumental parts, the method comprising: generating a control stream that indicates which of the instrumental parts has a highest value for each of a plurality of periods of time; selecting one of the instrumental parts for the period of time based on the control stream; and outputting the selected instrumental part for each of the plurality of periods of time to produce the musical part (column 9, lines 42-50).

Regarding claims 2, 27, and 52, Yourlo discloses a method and apparatus wherein generating the control stream involves determining for each of said plurality of periods of time which of the instrumental parts has a highest value for that period of time and examining other periods of time defined by the electronic music file (Fig. 5, ref. 516).

Art Unit: 3713

Regarding claims 3, 28, and 53, Yourlo discloses a method and apparatus wherein generating the control involves for each of the plurality of periods of time, comparing a contribution of one instrumental part for that period of time to a contribution of another instrumental part for the period of time (column 7, lines 6-9).

Regarding claims 5, 30, and 55, Yourlo discloses a method and apparatus wherein generating the control stream comprises: obtaining measurement streams which include values for corresponding instrumental parts; and identifying an instrumental part in the measurement streams that has the highest value for the period of time (column 7, lines 9-29).

Regarding claims 6, 31, and 56, Yourlo discloses a method and apparatus wherein obtaining the measurement streams includes analyzing aspects of the musical part (column 7, lines 19-20).

Regarding claims 7, 32, and 57, Yourlo discloses a method and apparatus wherein the aspects include one or more of strum speed, average pitch, polyphony, loudness, and a vocal part (column 11, lines 35-50).

Regarding claims 8, 33, and 58, Yourlo discloses a method and apparatus wherein: generating the control stream further comprises merging the measurement streams to obtain a composite measurement stream; and the instrumental part in the measurement streams that has the highest value for the period of time is identified using the composite measurement stream (see Fig. 5, refs. 506, 618).

Regarding claims 9, 34, and 59, Yourlo discloses a method and apparatus, wherein the electronic music file comprises a Musical Instrument Digital Interface (MIDI) file (column 9, line 67).

Regarding claims 12, 37, and 62, Yourlo discloses a method and apparatus wherein generating is performed using a chooser object and selecting and outputting are performed using a switcher object (see Fig. 15, refs. 1504, 1506, 314).

3. Claims 13-20, 24-25, 39-45, 64-70, 49-50, and 74-75 are rejected under 35 U.S.C. 102(e) as being anticipated by Aoki (U.S. Patent No. 6,294,720 B1).

Regarding claims 13, 38, and 63, Aoki discloses a computer-implemented method and apparatus for generating a musical part from an electronic music file, comprising: for each of a plurality of periods of

Art Unit: 3713

time, identifying a plurality of patterns in the electronic music file; and selectively combining the patterns to produce the musical part (see Fig. 6, refs. 110, 112, 114, 116, 118; Fig. 2).

Regarding claims 14, 39, and 64, Aoki discloses a method and apparatus wherein the patterns comprise individual instrumental tracks in the electronic music file (column 21, lines 58-62).

Regarding claims 15, 40, and 65, Aoki discloses a method and apparatus wherein selectively combining comprises: selecting one of the patterns; determining if a rhythmic complexity of the selected pattern exceeds a predetermined threshold; and adding the selected pattern to the musical part if the rhythmic complexity of the selected pattern does not exceed the predetermined threshold (column 16, lines 8- 13; Figs. 5a and 5b).

Regarding claims 16, 41, and 66, Aoki discloses a method and apparatus further comprising discarding the selected pattern if the rhythmic complexity of the selected pattern exceeds the predetermined threshold (column 16, lines 39-41).

Regarding claims 17, 42, and 67, Aoki discloses a method and apparatus wherein the rhythmic complexity of the selected pattern is determined based on musical features of the selected pattern (column 5, lines 37-46).

Regarding claims 18, 43, and 68, Aoki discloses a method and apparatus wherein the musical features comprise one or more of a beat of the selected pattern, syncopated notes in the selected pattern, and proximity of notes in the selected pattern to other notes in the selected pattern (column 5, lines 37-46).

Regarding claims 19, 44, and 69, Aoki discloses a method and apparatus wherein selectively combining comprises: selecting one of the patterns; determining if the selected pattern is similar to a pattern already in the musical part; and adding the selected pattern to the musical part if the selected pattern is not similar to a pattern already in the musical part (Fig. 6, refs, 112, 116).

Regarding claims 20, 45, and 70, Aoki discloses a method and apparatus further comprising discarding the selected pattern if the selected pattern is similar to a pattern already in the musical part (column 16, lines 39-41).

Art Unit: 3713

Regarding claims 24, 49, and 74, Aoki discloses a method and apparatus wherein the electronic music file comprises a Musical Instrument Digital Interface (MIDI) file (column 10, line 27).

Regarding claims 25, 50, and 75, Aoki discloses a method and apparatus wherein the electronic music file is comprised of events; and the method further comprises removing all but pre-specified events from the electronic music file prior to performing, identifying, and selectively combining (column 21, lines 28-43).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. **Claims 22, 47, and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki (U.S. Patent No. 6,294,720).**

Aoki discloses a method and apparatus wherein the similarity of patterns is determined. It is not explicitly disclosed that quantization is used to determine the similarity. However, it is the Applicant's own admission that quantization is a common practice employed in comparing two patterns.

6. **Claims 21, 46, and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki (U.S. Patent No. 6,294,720) in view of Miller et al. (U.S. Patent No. 5,925,843).**

Art Unit: 3713

Aoki discloses a method and apparatus wherein the similarity of patterns is determined. It is not explicitly disclosed that fuzzy comparison is used to determine the similarity. However, Miller et al. disclose a method wherein the similarity of musical patterns is determined by fuzzy comparison (column 9, lines 3-5). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the pattern comparison method described by Aoki, by providing fuzzy comparison, in light of the teachings of Miller et al., in order to provide a more accurate comparison. Furthermore, it is the examiner's position that using fuzzy comparison is old and well known for controlling processes that involve constantly changing variables.

7. Claims 11, 36, and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yourlo (U.S. Patent No. 6,201,176) in view of Kikuchi (U.S. Patent No. 6,143,973).

Aoki discloses a method and apparatus comprising instrumental parts. It is not specifically disclosed that instrumental parts comprise a stream of events. However, Kikuchi discloses a method comprising instrumental parts further comprising a stream of events; each event in the stream of events having a time stamp; and the method further comprises changing time stamps of events that are within a predetermined time period of each other so that the time stamps are the same (column 8, lines 44-50; Fig. 6). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the instrumental parts described by Yourlo, by providing time stamps that change when events occur within a predetermined time period, in light of the teachings of Kikuchi, thereby allowing synchronization of the instrumental parts.

8. Claims 76-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yourlo (U.S. Patent No. 6,201,176)

Yourlo discloses a method of generating a control stream that indicates which of the instrumental parts has a highest value for each of a plurality of periods of time throughout the duration of a musical piece. It is not explicitly stated that the periods of time occur at the measures of a musical piece. However, it would have been an obvious matter of design choice as to the sampling points

Art Unit: 3713

wherein no stated problem is solved or unexpected result is obtained by prescribing sampling points at each measure.

Response to Arguments

9. Applicant's arguments filed 6/20/03 have been fully considered but they are not persuasive.

Applicant asserts that Yourlo does not in any way teach or suggest "generating a control stream that indicates which of the instrumental parts has a highest value for each of a plurality of periods of time"; does not in any way teach or suggest generating a control stream of any kind; is silent with respect to instrumental parts.

The specification of the instant claimed invention defines a control stream in the following manner: "the process of generating the control stream may include obtaining measurement streams that include values for corresponding instrumental parts and identifying an instrumental part in the measurement streams that has the highest value for the period of time." Yourlo describes a process wherein a music signal is sampled and undergoes a feature extraction step, wherein five sets of feature data (tempo data, loudness data, pitch data, sharpness data, and percussivity data) are extracted based on dominance. For example, the tempo feature extraction involves filtering a piece of music through a bank of comb filters and using a power comparator to determine which filter has the highest energy output at multiple sample points throughout the full duration of the piece of music (see Col. 6). Similarly, Yourlo discloses timbre (distinctive tone of an instrument) as being largely dependent on values that can be measured (frequency and magnitude); these measurements are then used to estimate the brightness or sharpness of different audio signals (see col. 7). In addition, Yourlo teaches the feature of extracting and identifying the dominant pitch (the characteristic quality or timbre of a particular instrument or voice) across the whole duration of a piece of music (see Col. 10, lines 19-22). Thus, contrary to applicant's assertion, Yourlo querying is not limited to the pieces of music as a whole piece, and Yourlo's system does in fact query instrumental parts within a piece of music by using a control stream. Yourlo does also compare music pieces as a whole, however, that comparison is based

Art Unit: 3713

on feature extraction of instrumental parts and identifying dominant feature data within each musical piece.

Applicant further asserts that Aoki does not teach or suggest "for each of a plurality of periods of time, identifying a plurality of patterns in the electronic music file". Contrary to applicant's assertion, Aoki does teach the feature of identifying a plurality of patterns, e.g., identifying pitch variation pattern data and rhythm pattern data in an electronic music file (54); and combining the pattern data in order to create a musical part (see Fig. 2).

Aoki does not *solely* extract a rhythm pattern that is a *skeletal pattern* as suggested by applicant. Instead the rhythm extraction provides a series of rhythmic alignment of note time points including: skeleton note time points (which are provided with pitch information from a pitch-providing device), and *non-skeleton* note time points (See Col. 3, lines 24-51).

Allowable Subject Matter

10. Claims 4, 23, 29, 48, 54, and 73 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 3713

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cameron Saadat whose telephone number is 703-305-5490. The examiner can normally be reached on M-F 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Teresa J Walberg can be reached on 703-308-1327. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1148.

CS
CS


Teresa Walberg
Supervisory Patent Examiner
Group 3700